Analytical and Quality Control Report

William Little WTS P.O. Box 363 Building 126 3RD Floor WSMR, NM, 88002

Report Date: February 6, 2007

Work Order: 7011209

Project Name:

HELSTF Groundwater Samples

Project Number: 7

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

			Date	lime	Date
Sample	Description	Matrix	Taken	Taken	Received
113755	HLSF-0085-HMW-009-0107	water	2007-01-10	13:45	2007-01-10
113756	HLSF-0085-TB-803-0107	water	2007-01-10	13:45	2007-01-10

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 27 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael April
Dr. Blair Leftwich, Director

Standard Flags

 $\,B\,$ - $\,$ The sample contains less than ten times the concentration found in the method blank.

Analytical Report

Sample: 113755 - HLSF-0085-HMW-009-0107

Analysis: Ag, Dissolved OC Batch: 33986 Prep Batch: 29250

Analytical Method: Date Analyzed:

Sample Preparation:

S 6010B 2007-01-25 2007-01-16 Prep Method: S 3005A Analyzed By:

RR Prepared By: TS

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RL

Parameter Flag Result Units Dilution RL Dissolved Silver < 0.00200 mg/L 0.00200

Sample: 113755 - HLSF-0085-HMW-009-0107

Analysis: Ag, Total QC Batch: 33924 Prep Batch: 29246

Analytical Method: Date Analyzed:

S 6010B 2007-01-24 2007-01-16 Prep Method: S 3010A Analyzed By: RR

TS

Prepared By:

RL

Sample Preparation:

Parameter Flag Result Units Dilution RL Total Silver < 0.00200 mg/L 0.00200

Sample: 113755 - HLSF-0085-HMW-009-0107

Analysis: Alkalinity OC Batch: 33694 Prep Batch: 29267

Analytical Method: SM 2320B Date Analyzed: Sample Preparation:

2007-01-16 2007-01-16 Prep Method: N/A Analyzed By: JG

Prepared By: JR

RL

Parameter	Flag	Result	Units	Dilution	RL
Hydroxide Alkalinity		<1.00	mg/L as CaCo3	1	1.00
Carbonate Alkalinity		< 1.00	mg/L as CaCo3	1	1.00
Bicarbonate Alkalinity		118	mg/L as CaCo3	1	4.00
Total Alkalinity		118	mg/L as CaCo3	1	4.00

Sample: 113755 - HLSF-0085-HMW-009-0107

Analysis: Conductivity QC Batch: 33614 Prep Batch: 29208

Analytical Method: SM 2510B Date Analyzed: 2007-01-11 Sample Preparation: 2007-01-11

Prep Method: N/A Analyzed By: DR Prepared By: JR

RL

Parameter Flag Result Units Dilution RLSpecific Conductance 11200 μMHOS/cm 0.00

Work Order: 7011209 **HELSTF Groundwater Samples**

Sample: 113755 - HLSF-0085-HMW-009-0107

Analysis: QC Batch:

Prep Batch:

Cr, Dissolved

33986 29250 Analytical Method: Date Analyzed:

Sample Preparation:

S 6010B 2007-01-25 2007-01-16 Prep Method: S 3005A Analyzed By: RR

Prepared By: TS

Page Number: 3 of 27

RL

Parameter Dissolved Chromium Flag Result < 0.00500

Units mg/L Dilution 1

RL 0.00500

Sample: 113755 - HLSF-0085-HMW-009-0107

Analysis: QC Batch:

Prep Batch:

Cr, Total 33924 29246

Analytical Method: Date Analyzed: Sample Preparation:

S 6010B 2007-01-24 2007-01-16 Prep Method: S 3010A Analyzed By: RR Prepared By: TS

RL

Parameter Total Chromium

Result Flag 0.0110 Units mg/L Dilution

RL0.00500

Sample: 113755 - HLSF-0085-HMW-009-0107

Analysis: QC Batch:

QC Batch:

Ion Chromatography 33868 Prep Batch: 29418 33898 Prep Batch: 29443

Analytical Method: E 300.0 Date Analyzed: 2007-01-11

Sample Preparation: 2007-01-11 Date Analyzed: 2007-01-22 Sample Preparation: 2007-01-22 Prep Method: N/A Analyzed By: JR Prepared By: JR

Analyzed By: JR Prepared By: JR

RL

Parameter	Flag	Result	Units	Dilution	RL
Bromide		<1.00	mg/L	5	0.200
Chloride		1080	mg/L	100	2.00
Fluoride		2.57	mg/L	5	0.200
Nitrite-N		< 0.500	mg/L	5	0.100
Nitrate-N		55.4	mg/L	50	0.100
Sulfate		5320	mg/L	1	1.00

Sample: 113755 - HLSF-0085-HMW-009-0107

Analysis: pН QC Batch: 33697 Prep Batch: 29270 Analytical Method: SM 4500-H+ Date Analyzed: 2007-01-11 Sample Preparation: 2007-01-11

Prep Method: N/A Analyzed By: DR Prepared By: JR

RL

Parameter Dilution Flag Result Units RL 7.55 pН s.u. 0.00

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Sample: 113755 - HLSF-0085-HMW-009-0107

Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	33675	Date Analyzed:	2007-01-12	Analyzed By:	JG
Prep Batch:	29252	Sample Preparation:	2007-01-12	Prepared By:	JR

RL

Parameter	Flag	Result	Units	Dilution	RL
Total Dissolved Solids		10400	mg/L	1	5.00

Sample: 113755 - HLSF-0085-HMW-009-0107

		RL			
Parameter	Flag	Result	Units	Dilution	RL
Total Organic Carbon		<1.00	mg/L	1	1.00

Sample: 113755 - HLSF-0085-HMW-009-0107

Analysis:	Volatiles WTS	Analytical Method:	S 8260B	Prep Method:	S 3510C
QC Batch:	33838	Date Analyzed:	2007-01-18	Analyzed By:	JG
Prep Batch:	29389	Sample Preparation:	2007-01-18	Prepared By:	JG

		RL			
Parameter	Flag	Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		< 1.00	$\mu { m g/L}$	l	1.00
Chloromethane (methyl chloride)		<1.00	μ g/L	1	1.00
Vinyl Chloride		<1.00	μ g/ $ m L$	1	1.00
Bromomethane (methyl bromide)		< 5.00	μ g/L	1	5.00
Chloroethane		< 1.00	$\mu { m g/L}$	1	1.00
Trichlorofluoromethane		< 1.00	μ g/L	1	1.00
Acetone		< 10.0	μ g/L	1	10.0
Iodomethane (methyl iodide)		< 5.00	μ g/L	1	5.00
Carbon Disulfide		< 1.00	μ g/L	1	1.00
Acrylonitrile		< 1.00	μ g/L	1	1.00
2-Butanone (MEK)		< 5.00	$\mu \mathrm{g/L}$	1	5.00
4-Methyl-2-pentanone (MIBK)		< 5.00	$\mu { m g}/{ m L}$	1	5.00
2-Hexanone		< 5.00	μ g/L	1	5.00
trans 1,4-Dichloro-2-butene		< 10.0	$\mu { m g/L}$	1	10.0
1,1-Dichloroethene		< 1.00	μ g/L	1	1.00
Methylene chloride		< 5.00	$\mu \mathrm{g/L}$	1	5.00
MTBE		<1.00	$\mu { m g}/{ m L}$	1	1.00
trans-1,2-Dichloroethene		<1.00	μ g/L	1	1.00
1,1-Dichloroethane		< 1.00	μ g/L	1	1.00
cis-1,2-Dichloroethene		< 1.00	$\mu \mathrm{g}/\mathrm{L}$	1	1.00
2,2-Dichloropropane		< 1.00	$\mu { m g/L}$	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		7.12	$\mu { m g/L}$	1	1.00
1,1,1-Trichloroethane		< 1.00	μ g/L	1	1.00
1,1-Dichloropropene		< 1.00	$\mu \mathrm{g}/\mathrm{L}$	1	1.00

continued . . .

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sample 113755 continued...

		RL			
Parameter	Flag	Result	Units	Dilution	RL
Benzene		<1.00	$\mu \mathrm{g/L}$	1	1.00
Carbon Tetrachloride		< 1.00	μ g/ $ m L$	l	1.00
1,2-Dichloropropane		<1.00	μ g/L	1	1.00
Trichloroethene (TCE)		<1.00	$\mu \mathrm{g}/\mathrm{L}$	1	1.00
Dibromomethane (methylene bromide)		< 1.00	$\mu \mathrm{g}/\mathrm{L}$	1	1.00
Bromodichloromethane		< 1.00	$\mu { m g/L}$	1	1.00
2-Chloroethyl vinyl ether		< 5.00	μ g/L	1	5.00
cis-1,3-Dichloropropene		< 1.00	μ g/L	1	1.00
trans-1,3-Dichloropropene		< 1.00	μ g/L	1	1.00
Toluene		<1.00	μ g/L	1	1.00
1,1,2-Trichloroethane		< 1.00	μ g/L	1	1.00
1,3-Dichloropropane		<1.00	μ g/L	1	1.00
Dibromochloromethane		< 1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		< 1.00	μ g/L	1	1.00
Tetrachloroethene (PCE)		< 1.00	μg/L	1	1.00
Chlorobenzene		< 1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		< 1.00	μg/L	1	1.00
Ethylbenzene		< 1.00	μg/L	1	1.00
m,p-Xylene		< 1.00	μ g/L	1	1.00
Bromoform		<1.00	μ g/L	1	1.00
Styrene		<1.00	μg/L	1	1.00
o-Xylene		<1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		< 1.00	μg/L	1	1.00
2-Chlorotoluene		< 1.00	μg/L	1	1.00
1,2,3-Trichloropropane		< 1.00	μg/L	1	1.00
Isopropylbenzene		< 1.00	μg/L	1	1.00
Bromobenzene		< 1.00	μ g/L	1	1.00
n-Propylbenzene		< 1.00	μ g/L	1	1.00
1,3,5-Trimethylbenzene		< 1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		<1.00	μg/L	i	1.00
1,4-Dichlorobenzene (para)		< 1.00	μg/L	1	1.00
sec-Butylbenzene		< 1.00	μg/L	1	1.00
1,3-Dichlorobenzene (meta)		< 1.00	μg/L	1	1.00
p-Isopropyltoluene		< 1.00	μ g/L	1	1.00
4-Chlorotoluene		< 1.00	$\mu \mathrm{g/L}$	1	1.00
1,2-Dichlorobenzene (ortho)		< 1.00	$\mu { m g/L}$	1	1.00
n-Butylbenzene		< 1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		< 5.00	μg/L	1	5.00
1,2,3-Trichlorobenzene		< 5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		< 5.00	μg/L	1	5.00
Naphthalene		< 5.00	μg/L	1	5.00
Hexachlorobutadiene	,	< 5.00	μg/L	1	5.00
Isopropyl Alcohol	,	< 5.00	μg/L	î	5.00
Tert-butyl Alcohol		< 5.00	μg/L	1	5.00
1,4-Dioxane		< 5.00	μg/L	1	5.00
,			r-6'~		

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		50.8	μg/L	1	50.0	102	82.4 - 115
Toluene-d8		54.0	μ g/L	1	50.0	108	89.7 - 108
4-Bromofluorobenzene (4-BFB)		48.2	μ g/L	1	50.0	96	84.6 - 114

Sample: 113755 - HLSF-0085-HMW-009-0107

Analysis: Zn, Dissolved QC Batch: 33986 Prep Batch: 29250 Analytical Method: S 6010B
Date Analyzed: 2007-01-25
Sample Preparation: 2007-01-16

Prep Method: S 3005A Analyzed By: RR Prepared By: TS

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Sample: 113755 - HLSF-0085-HMW-009-0107

Analysis: Zn, Total QC Batch: 33924 Prep Batch: 29246

Analytical Method: S 6010B Date Analyzed: 2007-01-24 Sample Preparation: 2007-01-16 Prep Method: S 3010A Analyzed By: RR Prepared By: TS

Sample: 113756 - HLSF-0085-TB-803-0107

Analysis: Volatiles WTS QC Batch: 33838 Prep Batch: 29389 Analytical Method: S 8260B
Date Analyzed: 2007-01-18
Sample Preparation: 2007-01-18

Prep Method: S 3510C Analyzed By: JG Prepared By: JG

		RL			
Parameter	Flag	Result	Units	Dilution	RL
Bromochloromethane		<1.00	μg/L	1	1.00
Dichlorodifluoromethane		<1.00	μ g/L	1	1.00
Chloromethane (methyl chloride)		< 1.00	μg/L	1	1.00
Vinyl Chloride		< 1.00	$\mu \mathrm{g/L}$	1	1.00
Bromomethane (methyl bromide)		< 5.00	μ g/L	l	5.00
Chloroethane		< 1.00	$\mu { m g/L}$	1	1.00
Trichlorofluoromethane		< 1.00	μ g/L	1	1.00
Acetone		16.5	$\mu \mathrm{g/L}$	1	. 10.0
Iodomethane (methyl iodide)		< 5.00	$\mu { m g/L}$	1	5.00
Carbon Disulfide		< 1.00	μ g/L	ĺ	1.00
Acrylonitrile		< 1.00	μg/L	1	1.00
2-Butanone (MEK)		< 5.00	$\mu \mathrm{g/L}$	1	5.00
4-Methyl-2-pentanone (MIBK)		< 5.00	μ g/L	l	5.00
2-Hexanone		< 5.00	μ g/L	1	5.00
trans 1,4-Dichloro-2-butene		<10.0	$\mu { m g/L}$	1	10.0
1,1-Dichloroethene	·	<1.00	μg/L	1	1.00

continued . . .

sample 113756 continued...

		RL			
Parameter	Flag	Result	Units	Dilution	RL
Methylene chloride		< 5.00	μg/L	1	5.00
MTBE		< 1.00	μ g/L	1	1.00
trans-1,2-Dichloroethene		< 1.00	μ g/L	1	1.00
1,1-Dichloroethane		< 1.00	μ g/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μ g/L	1	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		<1.00	μg/L	1	1.00
1,1,1-Trichloroethane		<1.00	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μ g/L	1	1.00
Carbon Tetrachloride		< 1.00	μg/L	1	1.00
1,2-Dichloropropane		<1.00	μ g/L	1	1.00
Trichloroethene (TCE)		<1.00	μ g/L	1	1.00
Dibromomethane (methylene bromide)		<1.00	μ g/L	1	1.00
Bromodichloromethane		< 1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		< 5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		< 1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		< 1.00	μg/L	1	1.00
1,1,2-Trichloroethane		< 1.00	μg/L	1	1.00
1,3-Dichloropropane		<1.00	μg/L	1	1.00
Dibromochloromethane		<1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		<1.00	μ g/L	1	1.00
Tetrachloroethene (PCE)		<1.00	μg/L	1	1.00
Chlorobenzene		< 1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		< 1.00	μg/L	1	1.00
Ethylbenzene		< 1.00	μg/L	ì	1.00
m,p-Xylene		< 1.00	μ g/L	i	1.00
Bromoform		< 1.00	μg/L	1	1.00
Styrene		< 1.00	$\mu { m g/L}$	1	1.00
o-Xylene		< 1.00	μg/L	1	1.00
1,1,2,2-Tetrachloroethane		< 1.00	μg/L	1	1.00
2-Chlorotoluene		< 1.00	μg/L	1	1.00
1,2,3-Trichloropropane		<1.00	μg/L	1	1.00
Isopropylbenzene		<1.00	μg/L	1	1.00
Bromobenzene		<1.00	μg/L	1	1.00
n-Propylbenzene		<1.00	μg/L	1	1.00
1,3,5-Trimethylbenzene		< 1.00	μg/L	1	1.00
tert-Butylbenzene		<1.00	μg/L	1	1.00
1,2,4-Trimethylbenzene		< 1.00	μg/L	1	1.00
1,4-Dichlorobenzene (para)		<1.00	μg/L	1	1.00
sec-Butylbenzene		< 1.00	μ g/L	1	1.00
1,3-Dichlorobenzene (meta)		<1.00	μg/L	1	1.00
p-Isopropyltoluene		<1.00	μg/L	1	1.00
4-Chlorotoluene		<1.00	μg/L	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	μg/L	î	1.00
n-Butylbenzene		<1.00	μg/L	1	1.00
1,2-Dibromo-3-chloropropane		< 5.00	μg/L	1	5.00
,		13100	1,0,0	continued	0.00

continued ...

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sample 113756 continued ...

		RL			
Parameter	Flag	Result	Units	Dilution	RL
1,2,3-Trichlorobenzene		< 5.00	μg/L	l	5.00
1,2,4-Trichlorobenzene		< 5.00	μ g/ ${\sf L}$	1	5.00
Naphthalene		< 5.00	μ g/L	1	5.00
Hexachlorobutadiene		< 5.00	μ g/L	1	5.00
Isopropyl Alcohol	1	270	μ g/L	1	5.00
Tert-butyl Alcohol		25.5	$\mu { m g/L}$	1	5.00
1,4-Dioxane		< 5.00	μg/L		5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane	18	53.2	μg/L	1	50.0	106	82.4 - 115
Toluene-d8		53.3	μ g/L	1	50.0	107	89.7 - 108
4-Bromofluorobenzene (4-BFB)		47.8	$\mu { m g/L}$	1	50.0	96	84.6 - 114

Method Blank (1) QC Batch: 33614

QC Batch: 33614 Prep Batch: 29208

Date Analyzed:

2007-01-11 QC Preparation: 2007-01-11 Analyzed By: Prepared By:

DR DR

RL

RL

Parameter Flag Specific Conductance

MDL Result 0.00

Units μMHOS/cm

Method Blank (1) QC Batch: 33675

QC Batch: 33675 Prep Batch: 29252

Date Analyzed: QC Preparation: 2007-01-12 2007-01-12 Analyzed By: JG Prepared By: JG

Parameter Flag Total Dissolved Solids

MDL Result Units

< 5.00 mg/L

Method Blank (1)

QC Batch: 33694

QC Batch: Prep Batch: 29267

33694

Date Analyzed: QC Preparation:

2007-01-16 2007-01-16

Analyzed By: JG

Prepared By: JG

MDL

Parameter Flag Result Units RL Hydroxide Alkalinity <1.00 mg/L as CaCo3 ī Carbonate Alkalinity mg/L as CaCo3 < 1.00 1 Bicarbonate Alkalinity < 4.00 mg/L as CaCo3 4 Total Alkalinity < 2.38 mg/L as CaCo3 4

¹Estimated concentration value greater than standard range.

Method Blank (1) QC Batch: 33838

QC Batch: 33838 Date Analyzed: 2007-01-18 Analyzed By: JG Prep Batch: 29389 QC Preparation: 2007-01-18 Prepared By: JG

		MDL		
Parameter	Flag	Result	Units	RL
Bromochloromethane		< 0.0699	μ g/L	1
Dichlorodiffuoromethane		< 0.0598	μ g/L	1
Chloromethane (methyl chloride)		< 0.230	μ g/L	1
Vinyl Chloride		< 0.0902	$\mu { m g/L}$	1
Bromomethane (methyl bromide)		< 0.740	μ g/L	5
Chloroethane		< 0.195	μ g/L	1
Trichlorofluoromethane		< 0.160	$\mu \mathrm{g/L}$	1
Acetone		< 0.854	$\mu \mathrm{g/L}$	10
Iodomethane (methyl iodide)		< 0.112	$\mu { m g}/{ m L}$	5
Carbon Disulfide		< 0.0764	μ g/L	1
Acrylonitrile		< 0.184	μ g/L	Ì
2-Butanone (MEK)		< 0.394	μg/L	5
4-Methyl-2-pentanone (MIBK)		< 0.484	μg/L	5
2-Hexanone		< 0.0975	μg/L	5
trans 1,4-Dichloro-2-butene		< 0.420	μg/L	10
1,1-Dichloroethene		< 0.0736	μg/L	1
Methylene chloride		< 0.689	μg/L	5
MTBE		< 0.0504	$\mu \mathrm{g/L}$	1
trans-1,2-Dichloroethene		< 0.0598	μg/L	l
1,1-Dichloroethane		< 0.0299	μg/L	1
cis-1,2-Dichloroethene		< 0.101	μg/L	1
2,2-Dichloropropane		< 0.0665	μg/L	Î
1,2-Dichloroethane (EDC)		<0.0557	μg/L	Î
Chloroform		< 0.0475	μg/L	î
1,1,1-Trichloroethane		< 0.0846	μg/L	1
1,1-Dichloropropene		< 0.0423	μg/L	1
Benzene		< 0.0495	μg/L	ì
Carbon Tetrachloride		< 0.121	μg/L	i
1,2-Dichloropropane		< 0.0933	μg/L	1
Trichloroethene (TCE)		< 0.0495	μg/L	Î
Dibromomethane (methylene bromide)		< 0.0640	μg/L	1
Bromodichloromethane		< 0.0651	μg/L	1
2-Chloroethyl vinyl ether		<0.0905	μg/L	5
cis-1,3-Dichloropropene		< 0.0640	μg/L	1
trans-1,3-Dichloropropene		< 0.0504	μg/L μg/L	1
Toluene		0.260	μg/L μg/L	1
		< 0.106		1
1,1,2-Trichloroethane		< 0.0625	μg/L μα/Ι	1
1,3-Dichloropropane		< 0.0791	μg/L	1
Dibromochloromethane		< 0.0791	μg/L	. j
1,2-Dibromoethane (EDB)			$\mu g/L$, 1
Tetrachloroethene (PCE)		< 0.0696	$\mu \mathrm{g/L}$	1
Chlorobenzene		0.0400	μ g/L	1
1,1,1,2-Tetrachloroethane		< 0.125	$\mu \mathrm{g}/\mathrm{L}$	1
Ethylbenzene		0.0700	μ g/L	1
m,p-Xylene		0.130	μ g/L]
Bromoform		< 0.0859	μ g/L	1
Styrene		0.0400	μ g/L	<u>l</u>

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		MDL		
Parameter	Flag	Result	Units	RL
o-Xylene		< 0.0505	$\mu \mathrm{g/L}$	1
1,1,2,2-Tetrachloroethane		< 0.0672	μ g/L	1
2-Chlorotoluene		< 0.0283	μ g/L	1
1,2,3-Trichloropropane		< 0.0679	μ g/L	1
Isopropylbenzene		< 0.0406	μ g/L	1
Bromobenzene		< 0.103	μ g/L	1
n-Propylbenzene		< 0.0423	μ g/L	1
1,3,5-Trimethylbenzene		< 0.0557	μ g/L	1
tert-Butylbenzene		< 0.0770	μ g/L	1
1,2,4-Trimethylbenzene		< 0.0336	μ g/L	1
1,4-Dichlorobenzene (para)		< 0.0672	μ g/L	1
sec-Butylbenzene		< 0.0439	μ g/L	1
1,3-Dichlorobenzene (meta)		< 0.0672	$\mu \mathrm{g}/\mathrm{L}$	1
p-Isopropyltoluene		< 0.0513	μ g/L	1
4-Chlorotoluene		< 0.0460	μ g/L	1
1,2-Dichlorobenzene (ortho)		< 0.0629	μg/L	1
n-Butylbenzene		< 0.0400	μ g/L	1
1,2-Dibromo-3-chloropropane		< 0.538	$\mu \mathrm{g}/\mathrm{L}$	5
1,2,3-Trichlorobenzene		< 0.504	μ g/L	5
1,2,4-Trichlorobenzene		< 0.166	μ g/L	5
Naphthalene		2.41	μ g/L	5
Hexachlorobutadiene		1.19	$\mu { m g}/{ m L}$	5
Isopropyl Alcohol		< 5.00	$\mu \mathrm{g/L}$	5
Tert-butyl Alcohol		< 5.00	μ g/L	5
1,4-Dioxane		< 5.00	$\mu { m g/L}$	5

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Dibromofluoromethane		51.0	μg/L	1	50.0	102	82.4 - 115
Toluene-d8	2	54.7	μ g/L	1	50.0	109	89.7 - 108
4-Bromofluorobenzene (4-BFB)		47.1	μ g/L	1	50.0	94	84.6 - 114

Method Blank (1) QC Batch: 33868

QC Batch: 33868 Date Analyzed: 2007-01-11 Analyzed By: JR
Prep Batch: 29418 QC Preparation: 2007-01-11 Prepared By: JR

MDL Parameter Flag Result Units RLBromide < 0.0217 mg/L 0.2 Chloride < 0.0257 mg/L 2 Fluoride < 0.0168 mg/L 0.2 Nitrite-N < 0.0168 mg/L 0.1 Nitrate-N < 0.0168 mg/L 0.1

²8260 Only - One surrogate is out of control limits. The other two surrogates show the sample preparation was performed properly.

Report Date: February 6, 2007 Work Order: 7011209 Page Number: 11 of 27

Report Date: Februar	ry 6, 2007	Work Order: 7011209 HELSTF Groundwater Samples		Page Number: 11 of 27		
Method Blank (1)	QC Batch: 33898					
QC Batch: 33898		Date Analyzed: 2007-01-22		Analyzed By: JR		
Prep Batch: 29443		QC Preparation: 2007-01-22		Prepared By: JR		
Danamatan	Flor	MDL Result	Units	pr		
Parameter Sulfate	Flag	<0.0598	mg/L	RL 1		
Method Blank (1)	QC Batch: 33924					
QC Batch: 33924		Date Analyzed: 2007-01-24		Analyzed By: RR		
Prep Batch: 29246		QC Preparation: 2007-01-16		Prepared By: TS		
		MDL				
Parameter	Flag	Result	Units	RL		
Total Silver		<0.000274	mg/L	0.002		
Method Blank (1)	QC Batch: 33924					
QC Batch: 33924		Date Analyzed: 2007-01-24		Analyzed By: RR		
Prep Batch: 29246		QC Preparation: 2007-01-16		Prepared By: TS		
		MDL				
Parameter	Flag	Result	Units	RL		
Total Chromium		< 0.00357	mg/L	0.005		
Method Blank (1)	QC Batch: 33924					
QC Batch: 33924		Date Analyzed: 2007-01-24		Analyzed By: RR		
Prep Batch: 29246		QC Preparation: 2007-01-16		Prepared By: TS		
_		MDL				
Parameter Total Zinc	Flag	Result <0.000666	Units	RL 0.005		
Total Zinc		<0.00000	mg/L	0.003		
Method Blank (1)	QC Batch: 33986					
QC Batch: 33986		Date Analyzed: 2007-01-25		Analyzed By: RR		
Prep Batch: 29250		QC Preparation: 2007-01-16		Prepared By: TS		
**		MDL				
Parameter	Flag	Result	Units	RL 0.002		

< 0.000199

mg/L

0.002

Dissolved Silver

Work Order: 7011209 **HELSTF** Groundwater Samples Page Number: 12 of 27

Method Blank (1)

QC Batch: 33986

OC Batch:

33986

Prep Batch: 29250 Date Analyzed:

2007-01-25

QC Preparation: 2007-01-16

RR Analyzed By:

Prepared By: TS

Parameter Flag Dissolved Chromium

MDL

Result < 0.00357 RL

Method Blank (1)

QC Batch: 33986

QC Batch:

33986

Date Analyzed:

2007-01-25

Analyzed By:

RR

0.005

Prep Batch:

29250

34014

QC Preparation:

2007-01-16

MDL

Prepared By:

TS

Parameter Flag

Result < 0.00300 Units mg/L

Units

mg/L

RL 0.005

Method Blank (1)

QC Batch: 34014

QC Batch:

Dissolved Zinc

Flag

Date Analyzed:

Analyzed By: Prepared By:

Prep Batch:

Parameter

QC Preparation:

MDL

< 0.382

Result

Units mg/L

Total Organic Carbon

Duplicates (1)

QC Batch: Prep Batch:

33614

Date Analyzed:

2007-01-11

Analyzed By:

DR

RL

Param

29208

QC Preparation:

2007-01-11

Prepared By:

DR

Specific Conductance

Sample Result

Result 12200

Duplicate

12200

Units μMHOS/cm Dilution

RPD

0

RPD Limit

6.7

Duplicates (1)

QC Batch:

33675

Date Analyzed:

2007-01-12

Analyzed By:

JG

JG

Prep Batch: 29252

QC Preparation:

2007-01-12

Prepared By:

Sample

Param Total Dissolved Solids Duplicate Result 9790

Result 10500 Units mg/L Dilution 1

RPD

7

RPD Limit 20

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Duplicates (1)

QC Batch: 33694 Prep Batch: 29267 Date Analyzed: 2007-01-16 QC Preparation: 2007-01-16 Analyzed By: JG Prepared By: JG

	Duplicate	Sample				RPD
Param	Result	Result	Units	Dilution	RPD	Limit
Hydroxide Alkalinity	<1.00	<1.00	mg/L as CaCo3	1	0	6.3
Carbonate Alkalinity	< 1.00	< 1.00	mg/L as CaCo3	1	0	6.3
Bicarbonate Alkalinity	206	202	mg/L as CaCo3	*	2	6.3
Total Alkalinity	206	202	mg/L as CaCo3	i	2	6.3

Duplicates (1)

QC Batch: 33697 Prep Batch: 29270 Date Analyzed: 2007-01-11 QC Preparation: 2007-01-11 Analyzed By: DR Prepared By: DR

	Duplicate	Sample				RPD
Param	Result	Result	Units	Dilution	RPD	Limit
pН	7.52	7.52	s.u.	j	0	20

Laboratory Control Spike (LCS-1)

QC Batch: 33838 Prep Batch: 29389 Date Analyzed: 2007-01-18 QC Preparation: 2007-01-18 Analyzed By: JG Prepared By: JG

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
1,1-Dichloroethene	53.2	μg/L	1	50.0	< 0.0736	106	83.4 - 114
Benzene	50.7	μ g/L	1	50.0	< 0.0495	101	83.5 - 115
Trichloroethene (TCE)	50.1	μ g/L	1	50.0	< 0.0495	100	91.3 ~ 111
Toluene	47.8	$\mu \mathrm{g}/\mathrm{L}$	ĺ	50.0	< 0.0736	96	82 - 110
Chlorobenzene	50.0	µg/L	1	50.0	< 0.0217	100	87.9 - 109

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
1,1-Dichloroethene	51.8	μg/L	l	50.0	< 0.0736	104	83.4 - 114	3	20
Benzene	50.3	μ g/L	1	50.0	< 0.0495	101	83.5 - 115	1	20
Trichloroethene (TCE)	49.5	μ g/L	1	50.0	< 0.0495	99	91.3 - 111	1	20
Toluene	47.2	μ g/L	1	50.0	< 0.0736	94	82 - 110	1	20
Chlorobenzene	49.6	μ g/L	1	50.0	< 0.0217	99	87.9 - 109	1	20

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Dibromofluoromethane	51.0	51.3	μg/L	1	50.0	102	103	82.4 - 115
Toluene-d8	50.9	51.7	μ g/L	1	50.0	102	103	89.7 - 108
4-Bromoffuorobenzene (4-BFB)	51.2	51.2	$\mu \mathrm{g/L}$	1	50.0	102	102	84.6 - 114

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Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch: 29418

33868

Date Analyzed:

2007-01-11 QC Preparation: 2007-01-11 Analyzed By: JR

JR Prepared By:

	LCS			Spike	Matrix	_	Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Bromide	2,49	mg/L	1	2.50	< 0.0217	100	90 - 110
Chloride	12.2	mg/L	1	12.5	< 0.0257	98	90 - 110
Fluoride	2.53	mg/L	1	2.50	< 0.0168	101	88.6 - 107
Nitrite-N	2.52	mg/L	1	2.50	< 0.0168	101	90 - 110
Nitrate-N	2.51	mg/L	1	2.50	< 0.0168	100	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Bromide	2.49	mg/L	1	2.50	< 0.0217	100	90 - 110	0	20
Chloride	12.2	mg/L	1	12.5	< 0.0257	98	90 - 110	0	20
Fluoride	2.52	mg/L	1	2.50	< 0.0168	101	88.6 - 107	0	20
Nitrite-N	2.52	mg/L	i	2.50	< 0.0168	101	90 - 110	0	20
Nitrate-N	2.52	mg/L	1	2.50	< 0.0168	101	90 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-I)

OC Batch:

33898 Prep Batch: 29443 Date Analyzed:

2007-01-22 QC Preparation: 2007-01-22

Analyzed By: JR

Prepared By: JR

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Sulfate	12.6	mg/L	Ī	12.5	< 0.0598	101	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate	12.6	mg/L	1	12.5	< 0.0598	101	90 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

OC Batch: 33924 Date Analyzed:

2007-01-24

Analyzed By: RR

Prep Batch: 29246

QC Preparation: 2007-01-16

Prepared By:

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Silver	0.124	mg/L	1	0.125	< 0.000274	99	87.9 - 111

7

Work Order: 7011209 **HELSTF** Groundwater Samples

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Silver	0.122	mg/L	1	0.125	< 0.000274	98	87.9 - 111	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 33924 Prep Batch: 29246

Date Analyzed: 2007-01-24 QC Preparation: 2007-01-16 Analyzed By: RRPrepared By:

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	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Chromium	0.106	mg/L	1	0.100	< 0.00357	106	86.5 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Chromium	0.110	mg/L	1	0.100	< 0.00357	110	86.5 - 115	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch:

33924

Date Analyzed:

2007-01-24

Analyzed By: RR

Prep Batch: 29246

QC Preparation: 2007-01-16

Prepared By: TS

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Zinc	0.242	mg/L	1	0.250	< 0.000666	97	82.9 - 109

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD	
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit	
Total Zinc	0.242	mg/L	1	0.250	< 0.000666	97	82.9 - 109	0	20	

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch:

Dissolved Silver

33986 Prep Batch: 29250

Date Analyzed:

mg/L

2007-01-25

0.125

< 0.000199

QC Preparation: 2007-01-16 Analyzed By: RR

86.2 - 116

Prepared By: TS

97

LCS Spike Matrix Rec. Param Result Result Units Dil. Amount Rec. Limit

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

0.121

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Silver	0.122	mg/L	1	0.125	< 0.000199	98	86.2 - 116	1	20

Work Order: 7011209 **HELSTF** Groundwater Samples

Laboratory Control Spike (LCS-1)

OC Batch: Prep Batch: 29250

7

33986

Date Analyzed:

2007-01-25

QC Preparation: 2007-01-16 Analyzed By: RR

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Prepared By: TS

LCS Spike Matrix Rec. Param Units Result Dil. Amount Result Rec. Limit Dissolved Chromium 0.102 mg/L 0.100 < 0.00357 102 83 - 112

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Chromium	0.0980	mg/L	1	0.100	< 0.00357	98	83 - 112	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch:

33986

Date Analyzed:

2007-01-25

Analyzed By: RR

Prepared By: TS

Prep Batch: 29250 QC Preparation: 2007-01-16

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Dissolved Zinc	0.228	mg/L	1	0.250	< 0.00300	91	84.7 - 113

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Zinc	0.233	mg/L	1	0.250	< 0.00300	93	84.7 - 113	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch:

34014

Date Analyzed:

Analyzed By:

Prep Batch:

QC Preparation:

Prepared By:

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Organic Carbon	5.60	mg/L	1	5.00	< 0.382	112	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Organic Carbon	5.25	mg/L	1	5.00	< 0.382	105	70 - 130	6	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 113757

QC Batch: 33838 Date Analyzed: 2007-01-18 Analyzed By: JG Prepared By:

Prep Batch: 29389

QC Preparation: 2007-01-18

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Work Order: 7011209 HELSTF Groundwater Samples

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
1,1-Dichloroethene	53.2	μg/L	1	50.0	< 0.0736	106	78.7 - 119
Benzene	50.1	μ g/L	1	50.0	< 0.0495	100	75.8 - 125
Trichloroethene (TCE)	49.1	$\mu { m g/L}$	1	50.0	< 0.0495	98	83.6 - 112
Toluene	46.8	μ g/L	1	50.0	< 0.0736	94	81.6 - 115
Chlorobenzene	48.7	μ g/L	1	50.0	< 0.0217	97	83.9 - 113

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
1,1-Dichloroethene	53.4	μ g/L	1	50.0	< 0.0736	107	78.7 - 119	0	20
Benzene	49.9	μ g/L	I	50.0	< 0.0495	100	75.8 - 125	0	20
Trichloroethene (TCE)	49.2	μ g/L	1	50.0	< 0.0495	98	83.6 - 112	0	20
Toluene	46.4	μ g/L	1	50.0	< 0.0736	93	81.6 - 115	1	20
Chlorobenzene	49.2	μ g/L	1	50.0	< 0.0217	98	83.9 - 113	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Dibromofluoromethane	51.6	51.6	μg/L	1	50	103	103	86.6 - 114
Toluene-d8	51.0	50.5	μ g/L	1	50	102	101	91 - 109
4-Bromofluorobenzene (4-BFB)	50.4	50.7	μ g/L	l	50	101	101	87.2 - 113

Matrix Spike (MS-1) Spiked Sample: 113757

QC Batch: 33868 Prep Batch: 29418 Date Analyzed: 2007-01-11 QC Preparation: 2007-01-11

Analyzed By: JR Prepared By: JR

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D	MS	** *	D.11	Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Bromide	126	mg/L	50	125	<1.08	101	90 - 110
Chloride	2940	mg/L	50	625	2310	101	90 - 110
Fluoride	128	mg/L	50	125	< 0.840	102	89.9 - 104
Nitrite-N	124	mg/L	50	125	< 0.840	99	90 - 110
Nitrate-N	212	mg/L	50	125	90.6	97	78.6 - 105

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Bromide	126	mg/L	50	125	<1.08	101	90 - 110	0	20
Chloride	2950	mg/L	50	625	2310	102	90 - 110	0	20
Fluoride	129	mg/L	50	125	< 0.840	103	89.9 - 104	1	20
Nitrite-N	126	mg/L	50	125	< 0.840	101	90 - 110	2	20
Nitrate-N	212	mg/L	50	125	90.6	97	78.6 - 105	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 113757

QC Batch: 33898 Prep Batch: 29443 Date Analyzed: 2007-01-22 QC Preparation: 2007-01-22 Analyzed By: JR Prepared By: JR

7

Work Order: 7011209 **HELSTF** Groundwater Samples Page Number: 18 of 27

MS Spike Matrix Rec. Limit Param Result Units Dil. Amount Result Rec. Sulfate 10200 mg/L 500 6250 4224 96 90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Sulfate	10200	mg/L	500	6250	4224	96	90 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 113753

QC Batch: 33924 Prep Batch: 29246 Date Analyzed: 2007-01-24 QC Preparation: 2007-01-16 Analyzed By: RR Prepared By: TS

MS Spike Matrix Rec. Param Result Units Dil. Amount Result Limit Rec. Total Silver 0.115 < 0.000274 92 mg/L 0.125 88.2 - 114

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Silver	0.117	mg/L	1	0.125	< 0.000274	94	88.2 - 114	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 113753

OC Batch: 33924 Prep Batch: 29246 Date Analyzed: 2007-01-24 2007-01-16 QC Preparation:

Analyzed By: RR Prepared By: TS

MS Spike Matrix Rec. Param Result Dil. Units Amount Result Rec. Limit Total Chromium 0.0750 < 0.00357 mg/L 0.100 75 69.2 - 129

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Chromium	0.0790	mg/L	1	0.100	< 0.00357	79	69.2 - 129	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 113753

QC Batch: 33924 Prep Batch: 29246 Date Analyzed: 2007-01-24 QC Preparation: 2007-01-16

Analyzed By: RR Prepared By: TS

MS Spike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit Total Zinc 0.195 mg/L 0.250 0.005 76 75.5 - 113

Work Order: 7011209 **HELSTF** Groundwater Samples

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Zinc	0.201	mg/L	1	0.250	0.005	78	75.5 - 113	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-2) Spiked Sample: 113751

QC Batch: 33924 Prep Batch: 29246

Date Analyzed: QC Preparation:

2007-01-24 2007-01-16

Analyzed By: RR

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Prepared By:

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Silver	0.118	mg/L	1	0.125	< 0.000274	94	88.2 - 114

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Silver	0.120	mg/L	l	0.125	< 0.000274	96	88.2 - 114	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-2) Spiked Sample: 113751

QC Batch:

33924

Date Analyzed:

2007-01-24

Analyzed By: RR

Prep Batch: 29246

QC Preparation: 2007-01-16

Prepared By: TS

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Chromium	0.0920	mg/L	1	0.100	< 0.00357	92	69.2 - 129

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Chromium	0.0930	mg/L	1	0.100	< 0.00357	93	69.2 - 129	i	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-2) Spiked Sample: 113751

QC Batch:

33924

Date Analyzed:

2007-01-24

Prepared By:

Analyzed By: RR

Prep Batch: 29246

QC Preparation: 2007-01-16

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Zinc	0.223	mg/L	1	0.250	<0.000666	89	75.5 - 113

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Zinc	0.231	mg/L	l	0.250	< 0.000666	92	75.5 - 113	4	20

Work Order: 7011209

HELSTF Groundwater Samples

Matrix Spike (MS-1)

Spiked Sample: 113753

QC Batch: 33986 Prep Batch: 29250

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Date Analyzed:

2007-01-25

QC Preparation: 2007-01-16 Analyzed By: RR

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Prepared By:

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Dissolved Silver	0.116	mg/L	1	0.125	< 0.000199	93	90.1 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Silver	0.116	mg/L	1	0.125	< 0.000199	93	90.1 - 120	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

Spiked Sample: 113753

QC Batch: 33986 Prep Batch: 29250 Date Analyzed: 2007-01-25

QC Preparation:

2007-01-16

Analyzed By: RR

TS

Prepared By:

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit .
Dissolved Chromium	0.0860	mg/L	1	0.100	< 0.00357	86	75 - 121

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Chromium	0.0860	mg/L	1	0.100	< 0.00357	86	75 - 121	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

Spiked Sample: 113753

QC Batch: 33986 Prep Batch: 29250 Date Analyzed: QC Preparation:

2007-01-25 2007-01-16 Analyzed By: RR Prepared By: TS

MS Matrix Spike Rec. Param Result Units Dil. Amount Result Limit Rec. 96 Dissolved Zinc 0.239 0.250 < 0.00300 80.4 - 120 mg/L

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Zinc	0.241	mg/L	l	0.250	< 0.00300	96	80.4 - 120	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-2) Spiked Sample: 113751

QC Batch: 33986 Date Analyzed:

2007-01-25

Analyzed By: RR

Prep Batch: 29250

QC Preparation: 2007-01-16 Prepared By: TS

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MS Spike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit Dissolved Silver 0.115 90.1 - 120 0.125 < 0.000199 92 mg/L

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Silver	0.115	mg/L	1	0.125	< 0.000199	92	90.1 - 120	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-2) Spiked Sample: 113751

QC Batch: 33986 Prep Batch: 29250 Date Analyzed: 2007-01-25 QC Preparation: 2007-01-16

Analyzed By: RR Prepared By: TS

MS Spike Matrix Rec. Param Result Units Dil. Amount Result Limit Rec. Dissolved Chromium 0.0910 mg/L 0.100 < 0.00357 91 75 - 121 1

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Chromium	0.0890	mg/L	1	0.100	< 0.00357	89	75 - 121	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-2) Spiked Sample: 113751

QC Batch: 33986 Prep Batch: 29250 Date Analyzed: 2007-01-25 QC Preparation: 2007-01-16 Analyzed By: RR Prepared By: TS

MS Spike Matrix Rec. Param Result Dil. Units Amount Result Limit Rec. Dissolved Zinc 0.234 0.250 < 0.00300 94 80.4 - 120 mg/L

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Zinc	0.227	mg/L	1	0.250	< 0.00300	91	80.4 - 120	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 113761

QC Batch: 34014 Prep Batch:

Date Analyzed: QC Preparation: Analyzed By: Prepared By:

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Organic Carbon	4.96	mg/L	1	5.00	< 0.382	99	70 - 130

QC Batch: 33694

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Work Order: 7011209 **HELSTF** Groundwater Samples Page Number: 22 of 27

Dovons		MSD	Y to tall Y	.15	Spike	Matrix	70	Rec.	Y2 Y2 Y2	RPD
Param Total Organic Carbon	3	Result 9.94	Units E)il. /	Amount 5.00	Result <0.382	Rec. 199	Limit 70 - 130	RPD	Limit
	.1 11		<u>~</u>	1				70 - 130	67	20
Percent recovery is based	on the spike	e result. RPD	is based on	the spike	e and spike	duplicate re	esult.			
Standard (ICV-1)										
QC Batch: 33614			Date Analy	zed: 2	007-01-11			Aı	nalyzed B	y: DR
			IC	CVs	ICVs	ICV	/s	Percent		
			T	rue	Found	Perc	ent	Recovery		Date
Param	Flag	Units		onc.	Conc.	Reco	very	Limits		nalyzed
Specific Conductance		μMHOS/	cm 1	410	1410	10	0	96.7 - 108	200)7-01-11
Standard (CCV-1)										
QC Batch: 33614			Date Analy	zed: 2	007-01-11			Aı	ıalyzed B	y: DR
			C	CVs	CCVs	CC.	Vs	Percent		
			T	rue	Found	Perc	ent	Recovery		Date
Param	Flag	Units	C	one.	Conc.	Reco	very	Limits	A:	nalyzed
Specific Conductance		μMHOS/	cm l	410	1410	10	0	96.7 - 108)7-01-11
Standard (ICV-1)										
QC Batch: 33675			Date Analy	zed: 2	2007-01-12			Α	nalyzed E	By: JG
			ICVs		ICVs	ICVs		Percent		
			True		Found	Percer	ıt	Recovery		Date
Param	Flag	Units	Conc		Conc.	Recove	ry	Limits	A	nalyzed
Total Dissolved Solids		mg/L	1000		1010	101		94.4 - 106	200	07-01-12
Standard (CCV-1)										
QC Batch: 33675			Date Analy	zed: 2	2007-01-12			A	nalyzed I	By: JG
			CCVs	3	CCVs	CCVs	3	Percent		
			True		Found	Percer		Recovery		Date
Param	Flag	Units	Conc		Conc.	Recove		Limits		nalyzed
Total Dissolved Solids		mg/L	1000		992	99		94.4 - 106		7-01-12

			ICVs True	ICVs Found	ICVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0.00	<1.00		0 - 105	2007-01-16
							continued

Date Analyzed: 2007-01-16

Analyzed By: JG

³Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

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standard continued							
			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Carbonate Alkalinity		mg/L as CaCo3	0.00	236		0 - 105	2007-01-16
Bicarbonate Alkalinity		mg/L as CaCo3	0.00	8.00		0 - 105	2007-01-16
Total Alkalinity		mg/L as CaCo3	250	244	98	93.7 - 99.9	2007-01-16

Standard (CCV-1)

QC Batch: 33694

Date Analyzed: 2007-01-16

Analyzed By: JG

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0.00	<1.00	•	0 - 105	2007-01-16
Carbonate Alkalinity		mg/L as CaCo3	0.00	236		0 - 105	2007-01-16
Bicarbonate Alkalinity		mg/L as CaCo3	0.00	14.0		0 - 105	2007-01-16
Total Alkalinity		mg/L as CaCo3	250	250	100	93.7 - 99.9	2007-01-16

Standard (ICV-1)

QC Batch: 33697

Date Analyzed: 2007-01-11

Analyzed By: DR

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
рН		s.u.	7.00	6.97	100	98.8 - 101	2007-01-11

Standard (CCV-1)

QC Batch: 33697

Date Analyzed: 2007-01-11

Analyzed By: DR

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
рН		s.u.	7.00	7.02	100	98.8 - 101	2007-01-11

Standard (CCV-1)

QC Batch: 33838

Date Analyzed: 2007-01-18

Analyzed By: JG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		μg/L	50.0	51.9	104	80 - 120	2007-01-18
1,1-Dichloroethene		μ g/L	50.0	52.5	105	80 - 120	2007-01-18
Chloroform		μ g/L	50.0	51.8	104	80 - 120	2007-01-18
1,2-Dichloropropane		μg/L	50.0	51.1	102	80 - 120	2007-01-18
Toluene		$\mu \mathrm{g}/\mathrm{L}$	50.0	46.2	92	80 - 120	2007-01-18
Chlorobenzene		μg/L	50.0	49.3	99	80 - 120	2007-01-18

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Work Order: 7011209 HELSTF Groundwater Samples

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standard continued ...

sianaara commiea	•		CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Ethylbenzene		μg/L	50.0	52.3	105	80 - 120	2007-01-18

Standard (CCV-2)

QC Batch: 33838

Date Analyzed: 2007-01-18

Analyzed By: JG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride	* * * * * * * * * * * * * * * * * * * *	μg/L	50.0	52.7	105	80 - 120	2007-01-18
1,1-Dichloroethene		μg/L	50.0	51.5	103	80 - 120	2007-01-18
Chloroform		μg/L	50.0	49.7	99	80 - 120	2007-01-18
1,2-Dichloropropane		μg/L	50.0	51.1	102	80 - 120	2007-01-18
Toluene		μ g/L	50.0	45.9	92	80 - 120	2007-01-18
Chlorobenzene		μ g/L	50.0	48.1	96	80 - 120	2007-01-18
Ethylbenzene		μg/L	50.0	50.4	101	80 - 120	2007-01-18

Standard (ICV-1)

QC Batch: 33868

Flag

Units

mg/L

mg/L

mg/L

mg/L

mg/L

Param

Bromide

Chloride

Fluoride

Nitrite-N

Nitrate-N

Date Analyzed: 2007-01-11

ICVs

Found

Conc.

2.41

11.8

2.43

2.41

2.35

ICVs

Percent

Recovery

96

94

97

96

94

ICVs

True

Conc.

2.50

12.5

2.50

2.50

2.50

Analyzed By: JR

 Percent

 Recovery
 Date

 Limits
 Analyzed

 93.2 - 98.5
 2007-01-11

 90 - 110
 2007-01-11

 90 - 110
 2007-01-11

90 - 110

90 - 110

Standard (CCV-1)

QC Batch: 33868

Date Analyzed: 2007-01-11

Analyzed By: JR

2007-01-11

2007-01-11

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Bromide		mg/L	2.50	2.48	99	93.2 - 98.5	2007-01-11
Chloride		mg/L	12.5	12.1	97	90 - 110	2007-01-11
Fluoride		mg/L	2.50	2.49	100	90 - 110	2007-01-11
Nitrite-N		mg/L	2.50	2.46	98	90 - 110	2007-01-11
Nitrate-N		mg/L	2.50	2.40	96	90 - 110	2007-01-11

Standard (ICV-1)

QC Batch: 33898

Date Analyzed: 2007-01-22

Analyzed By: JR

Work Order: 7011209 HELSTF Groundwater Samples

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		mg/L	12.5	11.8	94	90 - 110	2007-01-22

Standard (CCV-1)

QC Batch: 33898

Date Analyzed: 2007-01-22

Analyzed By: JR

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			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Sulfate		mg/L	12,5	12.1	97	90 - 110	2007-01-22

Standard (ICV-1)

QC Batch: 33924

Date Analyzed: 2007-01-24

Analyzed By: RR

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Silver		mg/L	0.125	0.123	98	90 - 110	2007-01-24

Standard (ICV-1)

QC Batch: 33924

Date Analyzed: 2007-01-24

Analyzed By: RR

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Chromium		mg/L	1.00	0.966	97	90 - 110	2007-01-24

Standard (ICV-1)

QC Batch: 33924

Date Analyzed: 2007-01-24

Analyzed By: RR

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Zinc		mg/L	1.00	1.02	102	90 - 110	2007-01-24

Standard (CCV-1)

QC Batch: 33924

Date Analyzed: 2007-01-24

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Silver		mg/L	0.125	0.136	109	90 - 110	2007-01-24

Work Order: 7011209 HELSTF Groundwater Samples Page Number: 26 of 27

Standard (CCV-1)

QC Batch: 33924

Date Analyzed: 2007-01-24

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Chromium		mg/L	1.00	1.06	106	90 - 110	2007-01-24

Standard (CCV-1)

QC Batch: 33924

Date Analyzed: 2007-01-24

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Zinc		mg/L	1.00	1.04	104	90 - 110	2007-01-24

Standard (ICV-1)

QC Batch: 33986

Date Analyzed: 2007-01-25

Analyzed By: RR

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			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Silver		mg/L	0.125	0.125	100	90 - 110	2007-01-25

Standard (ICV-1)

QC Batch: 33986

Date Analyzed: 2007-01-25

Analyzed By: RR

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Chromium		mg/L	1.00	0.956	96	90 - 110	2007-01-25

Standard (ICV-1)

QC Batch: 33986

Date Analyzed: 2007-01-25

Analyzed By: RR

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Zinc		mg/L	1.00	1.02	102	90 ~ 110	2007-01-25

Standard (CCV-1)

QC Batch: 33986

Date Analyzed: 2007-01-25

Analyzed By: RR

Work Order: 7011209	Page Number: 27 of 27
HELSTF Groundwater Samples	

7 HELSTF Groundwater Samples								
Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	
Dissolved Silver		mg/L	0.125	0.126	101	90 - 110	2007-01-25	
Standard (CCV-1)								
QC Batch: 33986			Date Analyzed:	2007-01-25		Ana	Analyzed By: RR	
			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date	
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
Dissolved Chromium		mg/L	1.00	1.05	105	90 - 110	2007-01-25	
Standard (CCV-1) QC Batch: 33986			Date Analyzed:	2007-01-25		And	nlyzed By: RR	
QC Datch: 33960			Date Analyzed.	2007-01-23		Alla	nyzeu by; KK	
			CCVs	CCVs	CCVs	Percent		
			True	Found	Percent	Recovery	Date	
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
Dissolved Zinc		mg/L	1.00	1.08	108	90 - 110	2007-01-25	
Standard (ICV-1)								
QC Batch: 34014			Date Analyzed:		Analyzed By:			
			ICVs	ICVs	ICVs	Percent		
			True	Found	Percent	Recovery	Date	
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
Total Organic Carbon		mg/L	5.00	4.99	100	80 - 120	2007-01-26	
Standard (CCV-1)								
QC Batch: 34014			Date Analyzed:				Analyzed By:	
			CCVs	CCVs	CCVs	Percent		
			True	Found	Percent	Recovery	Date	
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
Total Organic Carbon		mg/L	5.00	4.95	99	80 - 120	2007-01-26	